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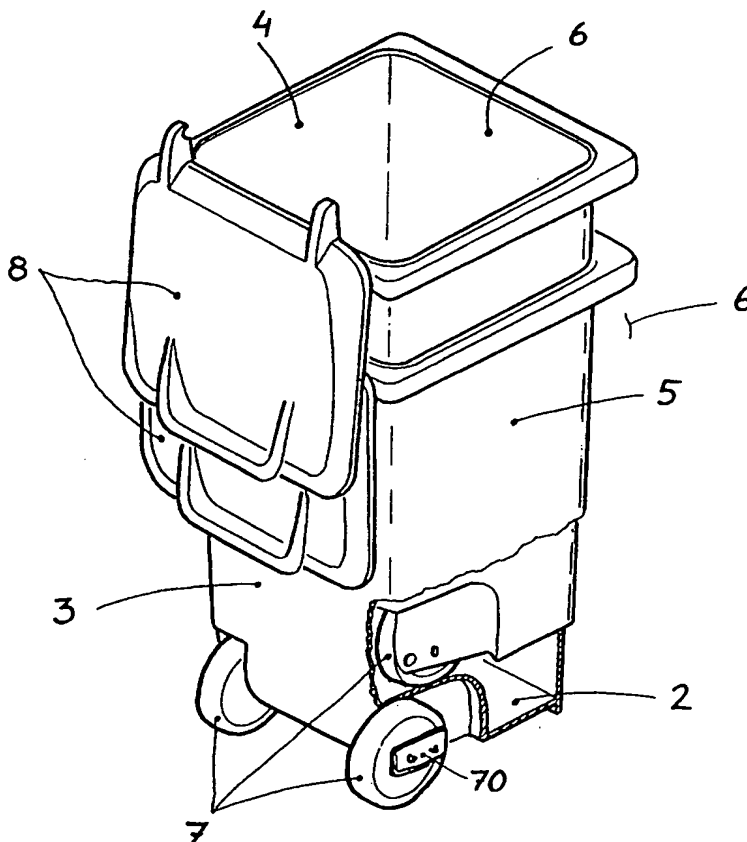
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(54) Title: WHEELED WASTE RECEPTACLE (1)

(57) Abstract

Waste receptacle (1) comprising a base (2), a rear wall (3), two side walls (4 and 5 respectively) and a front wall (6). The walls (3, 4, 5, 6) are inclined so that the horizontal cross section is smaller at the base (2) than at the top. The receptacle (1) is further provided with wheels (7) arranged at the base of the receptacle (1), which wheels (7) are used when moving said receptacle (1). The receptacle (1) is preferably also provided with a lid (8) which is uniform or parted into sections. The lid (8) is suitably arranged at the upper end (9) of the rear wall (3). The wheels (7) are each attached to a slewing bracket (70) which is provided with a rotation axle (71) and a pivot axle (72). The rotation axle (71) forms the rotation axle of the wheel (7) while the pivot axle (72) forms the fulcrum of movement for the slewing bracket (70). The rotation axle (71) and the pivot axle (72) are parallel to the rear wall (3). The wheels (7) can hereby be moved between a temporary and a regular, operative, position. The receptacle (1) can be moved by being rolled on the wheels (7) when the wheels (7) are in the operative position, after being inclined somewhat. Receptacles (1) with the wheels (7) in said temporary position can be nested into one another.



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### Wheeled waste receptacle (I)

The present invention relates to a waste receptacle provided with wheels.

Waste receptacles provided with wheels, and made of thermoplastic material are commonly used nowadays. One common type of such receptacles is the type which has a principally rectangular cross-section as seen from above, and two or more wheels. The wheel axle is often arranged near the base and near one of the sides, which side can be named the rear side. A lid is often arranged in connection to the upper edge of the rear side. Such a receptacle is tilted backwards when it is to be moved, rolling on the wheels.

Receptacles as above are, however, very bulky which will obstruct transport. This is most often solved by nesting a number of receptacles in one another. One problem is that the wheels can not be assembled since they will obstruct the nesting. The user will normally have to assemble the wheels when such a receptacle is delivered. This assembly is normally more or less complicated which will lead to an incorrect assembly with a deteriorated function as a consequence. One solution to this problem could be to arrange the wheels on the inside of the walls, including the rear wall whereby they could be factory assembled. This would, however, cause a number of inconveniences since the support area in the bottom of the receptacle would be radically reduced whereby the risk that the receptacle could turn over in connection to windy conditions would increase significantly. One possible solution to this attendant problem could be to make the wheel diameter smaller. The receptacle would, however then be more difficult to move, especially in stairs, over thresholds and on soft and uneven ground. The lids of the receptacles also cause problems since they in a varying degree protrude from a stack. This will cause stacked receptacles with assembled lids to be more space consuming. The risk is furthermore great that the lids or the suspension of the lids are damaged during transport.

It has, through the present invention, been made possible to manufacture a receptacle where the above mentioned disadvantages are avoided. The invention relates to a waste receptacle comprising a base, a rear wall, two side walls and a front wall. The walls are inclined so that the horizontal cross-section is smaller at the base than at the top of the receptacle. The receptacle is furthermore provided with wheels arranged at the base, which wheels are used when moving said receptacle. The receptacle is preferably provided with a lid which is uniform or divided into sections and suitably arranged at the upper end of the rear wall.

The invention is characterised in that the wheels are each attached to one slewing bracket which is provided with a rotation axle and a pivot axle. The

rotation axle forms the rotation axle for the wheel while the pivot axle forms the fulcrum of movement for the slewing bracket. The rotation axle and the pivot axle are parallel to the rear wall. The wheels can be moved between a temporary position and a regular position. By tilting the receptacle somewhat when the wheels are in the regular position, the receptacle can be moved by being rolled on the wheels. Receptacles can be nested into one another when the wheels are in the temporary position. The wheels are preferably arranged at the rear wall when in the regular position.

The rotation axle of the wheels is suitably parallel to the rear wall and the base when the wheels are located in both the temporary and the regular position.

The wheels are suitably placed inside the vertical extension of the side walls when in both temporary and regular position.

The slewing brackets can preferably be snap-fitted to the surrounding walls in at least the regular position. The slewing brackets are suitably snap-fitted into the regular position by being provided with at least one rotation axle peg which engages one rotation axle hole each. The rotation axle hole/holes is/are placed in the surrounding walls. The snap-fitting is accomplished by forcing the surrounding walls outwards when the rotation axle peg/pegs is/are forced towards guiding wedges at the lower part of the surrounding walls, whereby the surrounding walls snap back when the rotation axle peg/pegs is/are aligned with the rotation axle hole/holes.

According to an alternative embodiment of the invention the slewing brackets are snap-fitted into the regular position by being provided with at least one axially resilient rotation axle peg which engages one rotation axle hole each. The rotation axle hole/holes is/are placed in the surrounding walls. The snap-fitting is accomplished by forcing the rotation axle peg/pegs inwards when it/they is/are forced towards guiding wedges at the lower part of the surrounding walls whereby the rotation axle peg/pegs snaps/snap back when the rotation axle peg/pegs is/are aligned with the rotation axle hole/holes. Guiding wedges can of course also be placed on the rotation axle peg/pegs. These can also replace the guiding wedges on the lower edge of the surrounding walls.

The slewing brackets for both wheels are suitably connected to each other by means of a connecting axle so that the two slewing brackets form a unit. An increased stability in the wheel suspension is hereby obtained.

The receptacle is preferably also provided with a lid which is provided with operative and stow-away suspension means at the rear end of the lid. The operative suspension means is intended for a moveable attachment of the lid onto pivot axles at the upper end when the receptacle is used in a normal way. The lid can hereby be opened and closed. The stow-away suspension means is used for attaching a lid onto the pivot axles when a number of receptacles are nested in one-another. The suspension means are suitably of a snap-on type which considerably facilitates the assembly and disassembly of the lid. The lid can hereby easily be attached in both transport/storage position as well as in the use position where the lid can be opened and closed.

The invention is further illustrated by means of the enclosed figures showing different embodiments of the invention wherein,

-figure 1 shows, in perspective, a receptacle 1 according to one embodiment of the invention.

-figure 2 shows, in perspective, two receptacles 1 which correspond to the one shown in figure 1. A second receptacle 1 has been nested into a first receptacle 1. A part of the first receptacle has been cut away in order to show the function.

-figure 3 shows, in perspective, the lower part of the same embodiment of a receptacle 1 around the wheel attachment. Some parts have been cut away, as are parts additionally shown in exploded view in order to show the function.

-the figures 4.1 and 4.2 show, in perspective, the upper parts of the same embodiment of a receptacle 1 seen from the rear with parts of a lid 8 in exploded view. Figure 4.2 corresponds principally to figure 4.1, however, parts of the lid have been cut away in order to show the function.

-figure 5 shows an alternative embodiment of the invention where two slewing brackets 70 are connected by a connecting axle 71".

Figure 1 shows a receptacle 1 for waste comprising a base 2, a rear wall 3, two side walls 4 and 5 respectively and a front wall 6. The walls 3, 4, 5, 6 are inclined so that a cross-section close to the base 2 is smaller than at the top of the receptacle 1. The receptacle 1 is furthermore provided with wheels 7 in the transition between the base 2 and the rear wall 3, which wheels 7 are used when moving the receptacle 1. The receptacle 1 is also provided with a lid 8 arranged at the upper end 9 of the rear wall 3. The wheels 7 are movably attached via a

slewing bracket 70 (fig. 2) and can be folded from a temporary position (fig. 2) to a regular position. The wheels 7 are located in an operative position when in the regular position whereby the receptacle 1, by being tilted somewhat can be moved by being rolled on the wheels 7. The wheels 7 are located in a retracted position, when in the temporary position (fig. 2), as illustrated by the upper receptacle 1 in figure 2. A second receptacle 1 with the wheels 7 in said temporary position can hereby be nested into a first receptacle 1. The rotation axis of the wheels 7 is parallel to the rear wall 3 and the base 2 when the wheels 7 are placed in the regular position. The wheels 7 are placed inside the vertical extension of the side walls 4 and 5 respectively when in the regular position.

Figure 2 shows in perspective two receptacles 1 which correspond to the one shown in figure 1. A second receptacle 1 has been nested into a first receptacle 1. A part of the first receptacle 1 has been cut away in order to show the function. The wheels 7 are movably attached via a slewing bracket 70 and can be folded from a temporary to a regular position, in which regular position the wheels 7 are in an operative position whereby the receptacle, by being tilted somewhat can be moved, rolling on the wheels 7. The wheels 7 are located in a retracted position, when in the temporary position, so that the second receptacle 1, with the wheels 7 in said temporary position can be nested into the first receptacle 1. The rotation axis of the wheels 7 are parallel to the rear wall 3 and the base 2 when the wheels are arranged in both the temporary and the regular position. The wheels 7 are furthermore placed inside the vertical extension of the side walls 4 and 5 respectively in both the temporary and the regular position. The receptacle 1 is provided with a lid 8 which is provided with a stow-away and an operative suspension arrangement (fig. 4.2). The stow-away suspension arrangement is intended to be used for attaching the lid 8 to the receptacle 1 when a number of receptacles are nested into one another as shown in the figure.

Figure 3 shows, in perspective seen from behind, the lower part of the same embodiment of a receptacle 1 around the wheel attachment. The wheel 7 have been removed in order to show the function. The parts are additionally shown in exploded view in order to make the function clearer. One wheel 7 (fig. 2) is attached to a slewing bracket 70 which is provided with a rotation axle 71' and a pivot axle 72. The rotation axle 71 forms the rotation axle for wheel 7 (not shown) while the pivot axle 72 forms the fulcrum of movement for the slewing bracket 70. The rotation axle 71 and the pivot axle 72 are parallel to the rear wall 3. The slewing bracket 70 is constituted by two halves which are snapped together via the rotation axle 71 once the wheel 7 have been positioned. The slewing bracket is furthermore provided with rotation axle pegs 71', pivot axle pegs 72'

and a support profile 73. The receptacle 1 is at the base 2 provided with rotation axle holes 71" and pivot axle holes 72" which are intended to receive the rotation axle pegs 71' and the pivot axle pegs 72' respectively. The rotation axle holes 71" and the pivot axle holes 72" are placed in the surrounding walls 74. Once the wheel 7 have been assembled with the slewing bracket 70, the pivot axle pegs 72' can be brought into engagement with the pivot axle holes 72". The slewing bracket 70 can then be swung freely backwards and forwards. The slewing bracket 70 is snapped into the operative position by swinging it to the rear and snapping the rotation axle pegs 71' into the rotation axle holes 71" before use. The support profile 73 will rest against the lower edge of the surrounding walls 74, in which the axle holes 71" and 72" have been arranged, when in this position. The axle holes 71" and 72" are furthermore provided with guiding wedges 75 which will facilitate the assembly.

The rotation axle 71 can also be made hollow so that a through shaft of steel can be slid into position for increased stability.

The figures 4.1 and 4.2 show, in perspective, the upper parts of a receptacle 1 seen from the rear with parts of a lid 8 in exploded view. The receptacle 1 is provided with a lid 8 which at its rear end 8' is provided with an operative suspension means 81' and a stow-away suspension means 81" (fig. 4.2). The operative suspension means 81' is intended for a moveable attachment of the lid 8 onto pivot axles 82 at the upper end 9 when the receptacle 1 is used in a normal way. The lid 8 can hereby be opened and closed. The stow-away suspension means 81" (fig. 4.2) is used for attaching a lid 8 onto the pivot axles 82 when a number of receptacles 1 are nested in one-another as shown in figure 2. Figure 4.2 corresponds in the main with figure 4.1, however, parts of the lid have been cut away in order to show the function.

Figure 5 shows an alternative embodiment of the invention. The lower part of the receptacle 1 around the wheel 7 arrangement is shown in perspective from the rear. The wheel 7 is removed in the figure in order to show the function. A wheel 7 (fig. 2) is attached to a slewing bracket 70 which is provided with a rotation axle 71 and a pivot axle 72. The rotation axle 71 constitutes the rotation axle for the wheel 7 (not shown) while the pivot axle 72 constitutes the fulcrum of movement for the slewing bracket 70. The rotation axle 71 and the pivot axle are parallel to the rear wall 3. The wheel 7 is snap-fitted onto the rotation axle 71 and is kept in place by a snap wedge 77 when the wheel 7 is in the temporary position. The slewing bracket 70 is furthermore provided with rotation axle pegs 71', pivot axle pegs 72' (fig. 3) and a connection axle 71"". The connection axle 71"" connects the right slewing bracket 70 shown with the left slewing bracket 70 (not

shown). The receptacle 1 is at the base 2 provided with rotation axle holes 71" and a pivot axle hole 72" (fig. 3) which are intended to receive the rotation axle pegs 71' and pivot axle pegs 72' (fig. 3) respectively. The rotation axle holes 71" are arranged on surrounding side walls 74. The receptacle 1 is also provided with a gutter 76 which is intended to receive the connection axle 71"". The gutter 76 is furthermore provided with hooks 78 intended to keep the connection axle in place and hereby also the slewing bracket 70 and the wheels 7 (fig. 2) once they have been brought into the regular position. The pivot axle pegs 72' can be brought to engage the pivot axle holes 72" after having assembled the wheel 7 onto the slewing bracket 70. The slewing bracket 70 can now freely swing backwards and forwards. The slewing bracket 70 is before use of the receptacle 1 snapped into its operative position by means of the hooks 78 by swinging the slewing bracket 70 to the rear position and snapping the connection axle 71"" into position. The rotation axle peg 71' will in this position rest against the walls that form the rotation axle hole 71". The parts which form the moveable parts to which the wheels 7 are attached are suitably manufactured as a uniform unit, suitably through injection moulding of a thermoplastic material to which reinforcing material possibly have been added.

The rotation axle 71 and the connection axle can be made hollow, so that for example a steel axle can be pushed into place from one side of the receptacle 1. The rigidity can hereby be further increased.

The invention is not limited by the embodiments shown since they can be varied in different ways within the scope of the invention. The lid 8 can for example be parted into two halves which can be opened separately. The lid 8 can furthermore be movably attached to the receptacle 1 via other sides than the rear wall 3.



## Claims

1. Waste receptacle (1) comprising a base (2), a rear wall (3), two side walls (4 and 5 respectively) and a front wall (6), which walls (3, 4, 5, 6) are inclined so that the horizontal cross-section is smaller at the base (2) than at the top of the receptacle (1), that the receptacle (1) is provided with wheels (7) arranged at the base (2), which wheels (7) are used when moving said receptacle (1) and preferably a lid (8) which is uniform or divided into sections and suitably arranged at the upper end (9) of the rear wall (3), c h a r a c t e r i s e d in that the wheels (7) are each attached to one slewing bracket (70) which is provided with a rotation axle (71) and a pivot axle (72), whereby the rotation axle (71) forms the rotation axle for the wheel (7) while the pivot axle (72) forms the fulcrum of movement for the slewing bracket (70) and that the rotation axle (71) and the pivot axle (72) are parallel to the rear wall (3), whereby the wheels (7) can be moved between a temporary position and a regular position, in which regular position the receptacle (1) by being inclined somewhat can be moved by being rolled on the wheels (7) and in which temporary position receptacles (1) can be nested into one another.
2. Receptacle (1) according to claim 1 c h a r a c t e r i s e d in that the wheels (7) are arranged at the rear wall (3) when in the regular position.
3. Receptacle (1) according to claim 1 or 2 c h a r a c t e r i s e d in that the rotation axle of the wheels (7) is parallel to the rear wall (3) and the base (2) when the wheels (7) are located in both the temporary and the regular position.
4. Receptacle (1) according to any of the claims 1 - 3 c h a r a c t e r i s e d in that the wheels (7) are placed inside the vertical extension of the side walls (4 and 5 respectively) when situated in both temporary and regular position.
5. Receptacle (1) according to any of the claims 1 - 4 c h a r a c t e r i s e d in that the slewing brackets (70) can be snap-fitted to the surrounding walls (74) in at least the regular position.
6. Receptacle (1) according to claim 5 c h a r a c t e r i s e d in that the slewing brackets (70) are snap-fitted into the regular position by being provided with at least one rotation axle peg (71') which engages one rotation axle hole (71'') each which holes (71'') are placed in the surrounding walls (74), whereby the snap-fitting is accomplished by forcing the surrounding walls (74) outwards when the rotation axle peg/pegs (71') is/are forced towards guiding wedges (75) at the lower part of the surrounding walls (74) whereby the surrounding

walls (74) snap back when the rotation axle peg/pegs (71') is/are aligned with the rotation axle hole/holes (71'').

7. Receptacle (1) according to claim 5 characterised in that the slewing brackets (70) are snap-fitted into the regular position by being provided with at least one axially resilient rotation axle peg (71') which engages one rotation axle hole (71'') each, which holes (71'') are placed in the surrounding walls (74), whereby the snap-fitting is accomplished by forcing the rotation axle peg/pegs (71') inwards when it/they is/are forced towards guiding wedges (75) at the lower part of the surrounding walls (74) whereby the rotation axle peg/pegs (71') snaps/snap back when the rotation axle peg/pegs (71') is/are aligned with the rotation axle hole/holes (71'').
8. Receptacle (1) according to any of the claims 1 - 7 characterised in that the slewing brackets (70) for both wheels (7) are connected to each other by means of a connecting axle (71''') so that the two slewing brackets (70) form a unit.
9. Receptacle (1) according to any of the claims 1 - 8 characterised in that the receptacle (1) is provided with a lid (8) which is provided with an operative and a stow-away suspension means (81' and 81'' respectively) at the rear end (8') of the lid (8), which operative suspension means (81') is intended for a moveable attachment of the lid (8) onto pivot axles (82) at the upper end (9) when the receptacle (1) is used in a normal way, whereby the lid (8) can be opened and closed, and that the stow-away suspension means (81'') is used for attaching a lid (8) onto the pivot axles (82) when a number of receptacles (1) are nested in one another.

Fig.1

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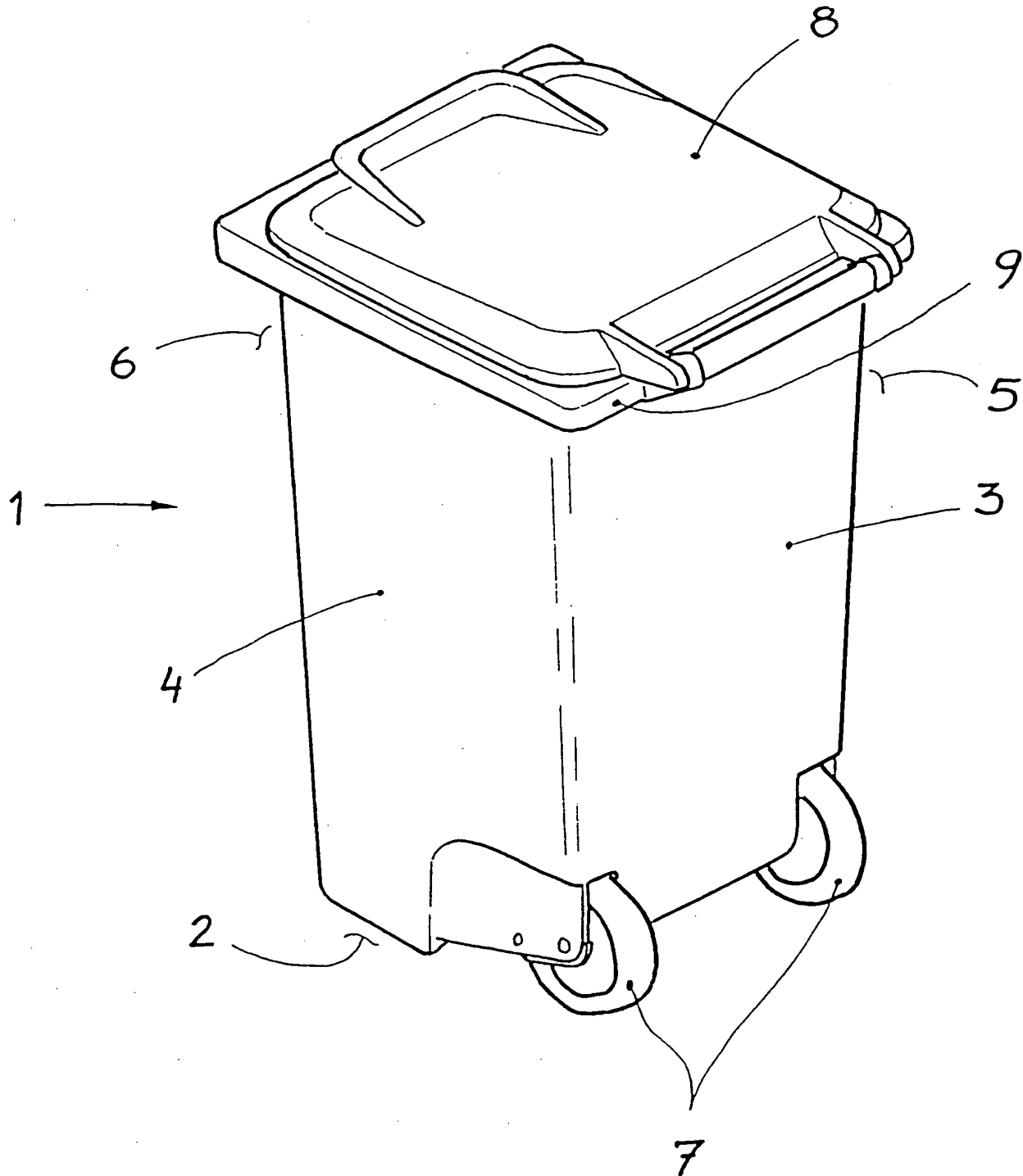


Fig. 2

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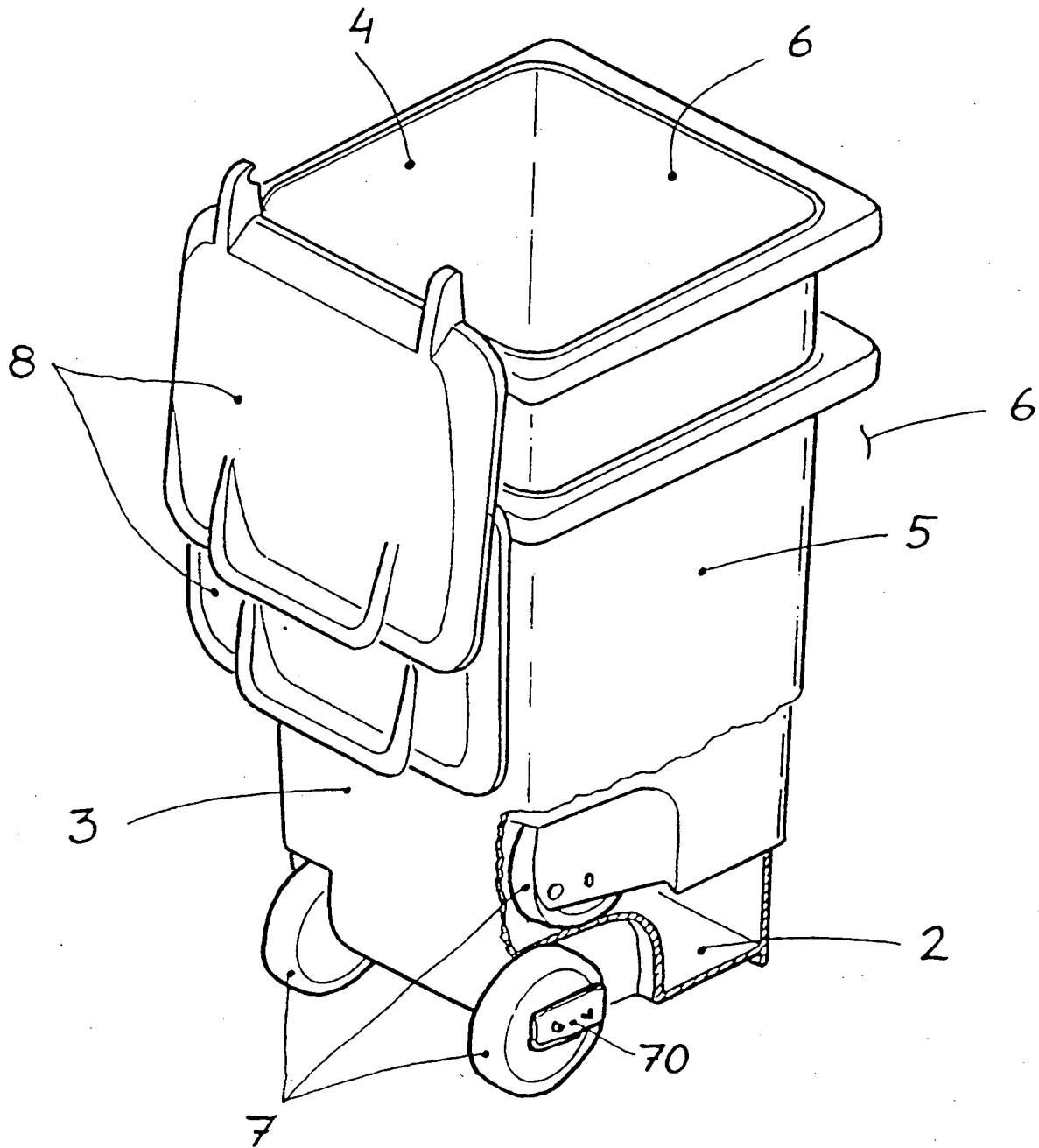


Fig. 3

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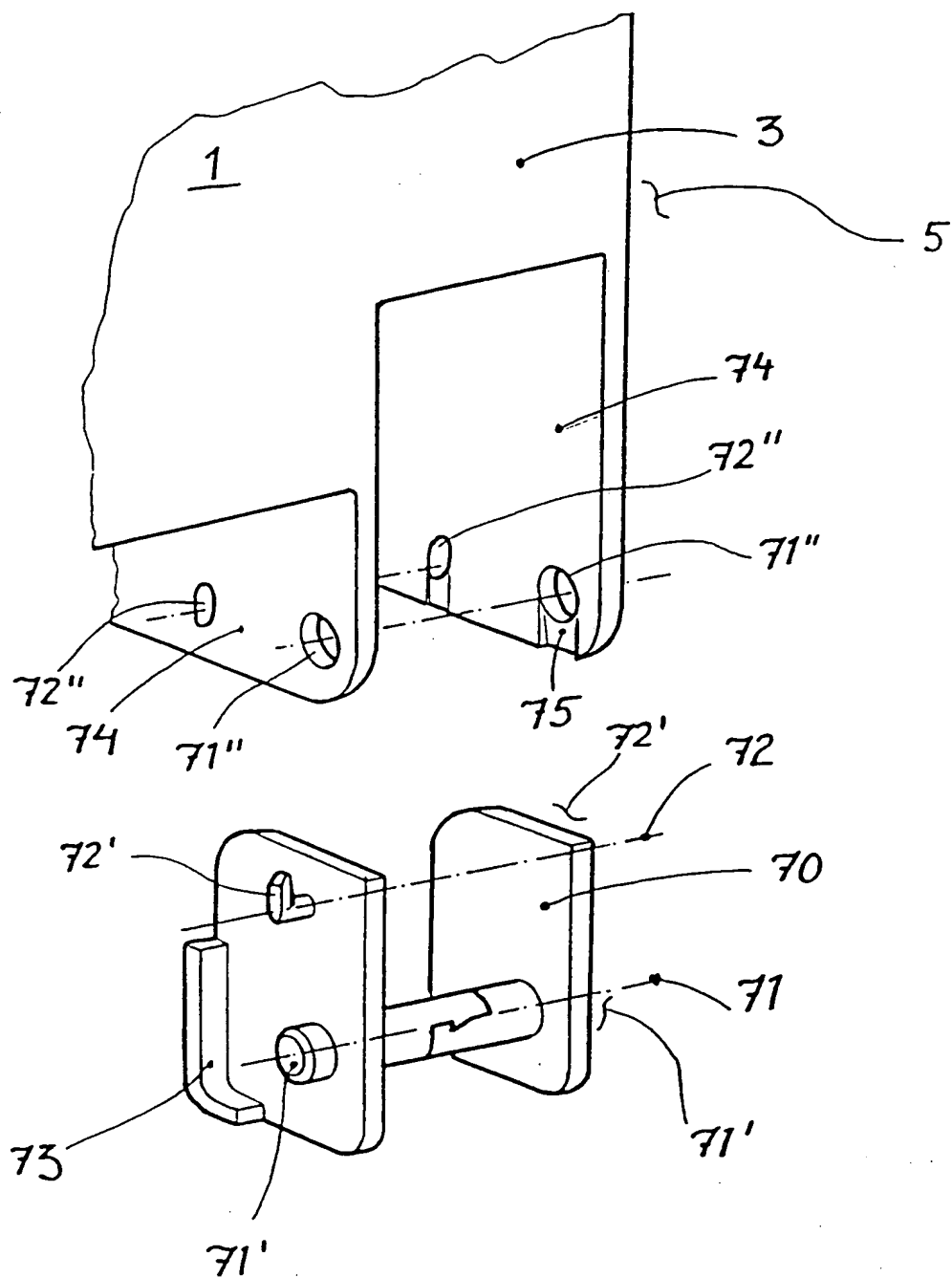


Fig. 4.1

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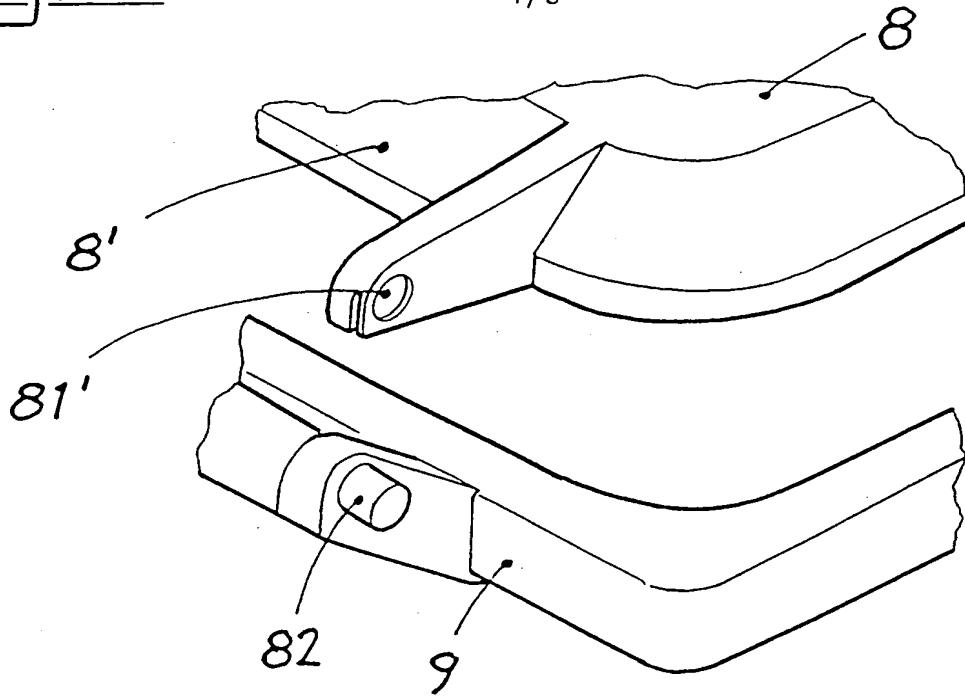


Fig. 4.2

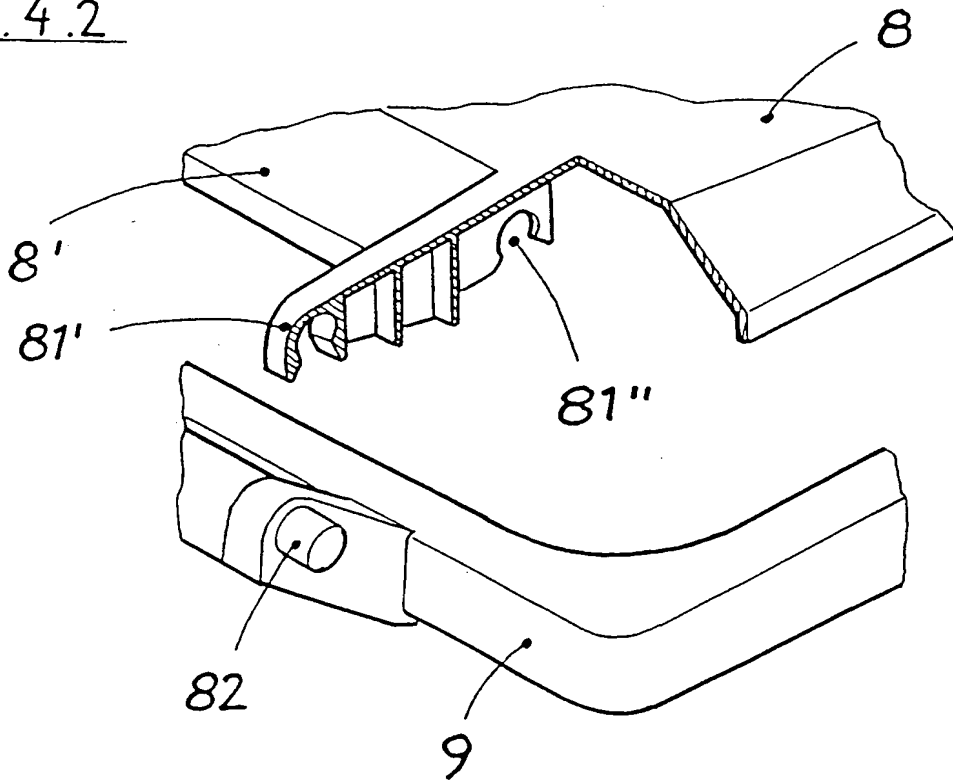
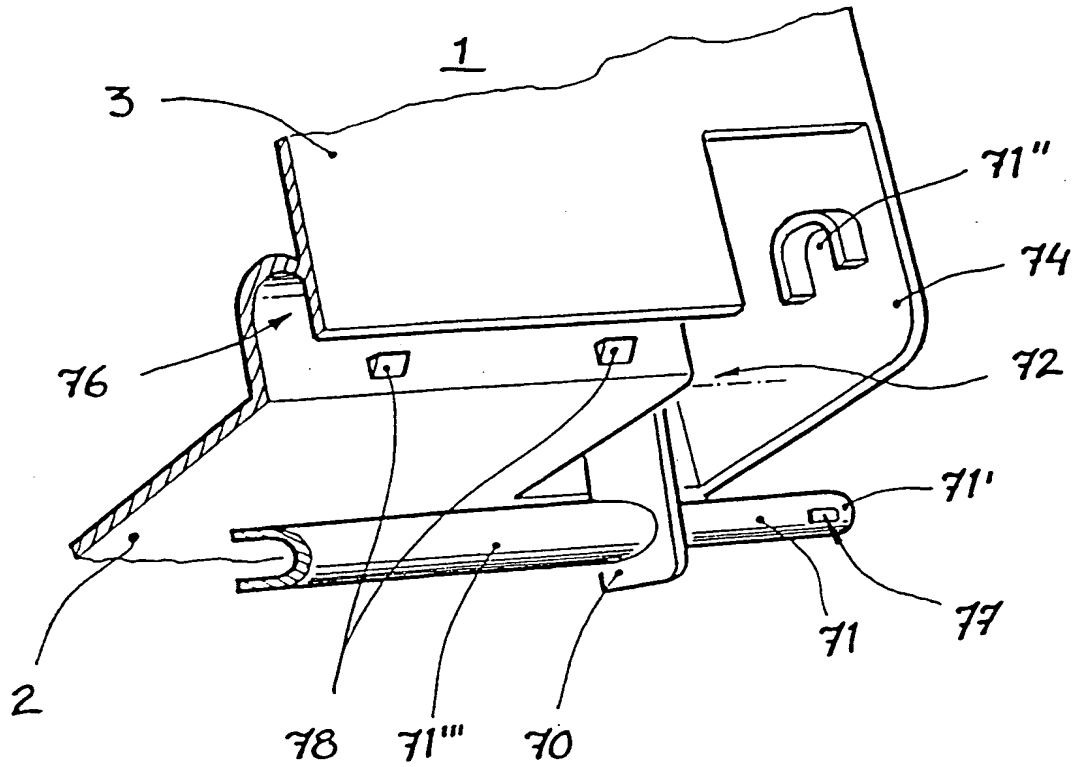


Fig. 5

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 98/00736

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: B65F 1/14, B65D 21/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: B65F, B65D, B62B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPIL, EDOC, JAPIO

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	DE 19702516 A1 (RUBBERMAID INC.), 7 August 1997 (07.08.97), figures 1-2,4-5, abstract --	1-4
A	EP 0288066 A2 (EDELHOFF M.S.T.S. GMBH), 26 October 1988 (26.10.88), figures 1-2, abstract --	1-4
A	US 5465844 A (LEE), 14 November 1995 (14.11.95), figures 1-4, abstract --	1-2,4
A	EP 0726172 A1 (COMPAGNIE PLASTIC OMNIUM), 13 February 1995 (13.02.95), figure 2, abstract --	7

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

30/06/98

International application No.

PCT/SE 98/00736

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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